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Supreme Court of the United States

OCTOBER TERM, 1968

RUTH MONTGOMERY, as Executrix of the Estate of ORION V. MONTGOMERY, etc., et al.,

Petitioners,

v.

GOODYEAR AIRCRAFT CORPORATION.

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE SECOND CIRCUIT

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RICHARD S. PERLES
JACK STEINMAN
On petition

Dated July 2, 1968.

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GOODYEAR AIRCRAFT CORPORATION.

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE SECOND CIRCUIT

TO THE HONORABLE CHIEF JUSTICES:

The petitioners, Ruth Montgomery, as Executrix of the Estate of Orion V. Montgomery, deceased, Mary Lucille Pipes, Administratrix of the Succession of Robert Hugh Pipes, deceased, Margaret Anne Rosley, Administratrix of the goods and chattels, rights and credits which were of Frank James Rosley deceased, Lila Lee Thompson, Temporary Administratrix of the Estate of Steve Barton Thompson, deceased, Barbara G. Leonard as Administratrix and prosequendum of the goods, chattels and credits which were of Robert Edward Leonard, deceased,

Nancy Mae Turner as Administratrix of the Estate of Edward E. Turner, Jr., deceased, Freda M. Furney, as administratrix of the goods, chattels and credits which were of Frederick Allen Furney, deceased, Maureen Clapper as Administratrix of the goods, chattels and credits which were of Richard H. Clapper, deceased, Vincent E. Godbold as Administrator of the Estate of Henry Vincent Godbold, deceased, Catherine R. Coutu, as Administratrix Ad Prosequendum of the Goods, Chattels and Credits which were of Leo Joseph Coutu, Deceased, Late of Ocean County, and Laurice Saniuk as Administratrix ad prosequendum of the goods, chattels and credits which were of Joseph J. Saniuk, deceased, pray that a Writ of Certiorari be issued to review the decision and judgment of the United States Court of Appeals for the Second Circuit filed April 10, 1968 affirming a final decree entered in the United States District Court for the Southern District of New York on June 14, 1967, upon the opinion of Irving Ben Cooper, District Judge.

The opinion of the Court of Appeals Appendix D of this petition is not officially reported. The opinion of the District Court by Irving Ben Cooper, District Judge, dismissing the libels is set forth in full at pages 153a through 160a, inclusive, of the appendix for the libelants-appellants in the Court below. It is reproduced herein at Appendix C.

Jurisdiction

The jurisdiction of this Court is invoked pursuant to the provisions of Title 28, U.S.C.A., Section 1254(1). The judgment of the Court of Appeals affirming the decree dismissing the libels was entered on April 10, 1968, the appeal having been argued on February 21, 1968. Said judgment is contained in Appendix A hereof.

Applicable Statutes

Rule 52 Subdivision (a) of the Federal Rules of Civil Procedure:

> Findings by the Court:
>
> (a) Effect. In all actions tried upon the facts without a jury . . . the court shall find the facts specially and state separately its conclusions of law thereon . . . Findings of fact shall not be set aside unless clearly erroneous, and due regard shall be given to the opportunity of the trial court to judge of the credibility of the witnesses . . .

Rule 19. Revised Rules of the Supreme Court of the United States:

> Considerations governing review on certiorari.
>
> 1. A review on writ of certiorari is not a matter of right, but of sound judicial discretion, and will be granted only where there are special and important reasons therefor. The following, while neither controlling nor fully measuring the court's discretion, indicate the character of reasons which will be considered:
>
> (b) Where a Court of Appeals . . . so far sanctioned such a departure by a lower court, as to call for an exercise of this court's power of supervision.

Question Presented

Whether this Court, in the exercise of its supervisory powers, should permit a judgment to stand when the Court below itself expressed the wish that the proof as to the cause of the disaster were more convincing; and this is superimposed upon the District Court's substantially verbatim adoption of the proposed findings of fact submitted by counsel for one side?

Statement of the Case

On July 6, 1960, a clear, summer afternoon, the United States Naval Airship, Reliance, ZPG3W, Buono 144242 (hereinafter referred to as the "242") crashed into the Atlantic Ocean off Barnegat Light, New Jersey. Twenty-one officers and men were aboard the "242". Three survived the crash.

The Trial Judge had one basic question to decide: Whether the tear, in and along the top center seam of the envelope, occurred during flight immediately before the crash, as appellants contend; or whether the tear occurred upon impact with the water, as respondents contend.

Implicit in this question were two subordinate ones: Whether Lieutenant Joseph J. Saniuk, the Patrol Airship Commander in charge of the "242" and one of the Navy's most highly qualified airship pilots, and his entire crew consisting of pilots, other flight officers, and highly trained enlisted men, were negligent in failing to observe the manometers, other warning devices, and flight characteristics of the airship to avoid flying the "242" into the Atlantic Ocean? Or whether the respondent was negligent in the manufacture of the top center seam of the envelope causing it to burst without warning over the Atlantic Ocean in mid-flight?

Both appellants' and respondent's experts agreed that the seam in question was stronger than the fabric pieces it joined. The Naval scientific investigation team and appellants contended that the 133 foot tear originated in a 40 inch opening in the seam. The respondent contended that the tear started in the fabric adjacent to the seam, progressed into the stronger seam for the 40 inches, and then left the seam and continued to tear the envelope fabric.

This contradictory, ever-shifting testimony found favor with the trial judge.

Despite serious discrepancies in the testimony of respondent's experts, the trial judge rendered a decision in favor of the respondents. The trial judge then accepted verbatim, with the exception of an innocuous 22 word phrase dealing with the appellants' failure to prove freedom from contributory negligence, all of respondent's findings of fact and conclusions of law. These findings are annexed hereto as Appendix B.

Reasons for Allowing the Writ of Certiorari

The Trial Judge's swallowing whole of the respondent's findings of fact and conclusions of law evidenced a complete abdication of the fact finding duty of the Court as imposed by Rule 52a of the Federal Rules of Civil Procedure.

The Court of Appeals in the instant matter was fully aware of the trial court's failing and wished that more convincing proof of the cause of the disaster had been elicited:

> "It would be more helpful to us on review, however, and would give us greater certainty that the result was correct and reached after careful and thoughtful consideration of all factors, if detailed findings and con-

clusions were reached by the judge himself rather than wholesale adoption of those submitted by counsel. See *Matton Oil Transfer* v. *The Dynamic,* 123 F. 2d 999 (2 Cir. 1941). F. R. Civ. P. 52(a), 5 Moore, Fed. Practice ¶ 52.03, p. 2632: 'The purpose of findings of fact and conclusions of law is to aid the trial court in making a correct factual decision and a reasoned application of the law to the facts; to define for purpose of *res judicata* and estoppel by judgment the issues then adjudicated; and to aid the appellate court'." (R. 1856, footnote 3, Appendix D, 42, 43, footnote 2.)

Many astute commentors have long recognized the evils inherent in the district courts being able to set forth as their own the findings of fact and conclusions of law submitted by one side—presumably the victor:

"To be properly understood and applied, however, it requires three qualifications: (1) Proposed findings should never be uncritically accepted. Mechanical adoption rather than in toto adoption, is the real vice. The trial judge should always make his own findings in the course of his decision making process and should use them as a basis for studying and, if necessary, revising those of counsel. (2) Before asking an attorney to prepare special findings, the judge should indicate to him the factual and legal basis of his decision. (3) The judge should not make a *practice* of adopting the attorney's findings verbatim. Only when counsel's findings are substantially as his own would be if he took the time to draft them should the judge accept them without change. A judge, of course, can never know for certain what his precise findings would be unless he does actually draft them. But by studying the notes of tentative findings he has made during the trial, and comparing them with counsel's proposals (including those of opposing counsel, if any are sub-

mitted), the judge should be able adequately to determine whether or not the draft of counsel is substantially in accord with his own views of the case."

(William A. Kaplan, *Fed. R. Civ. Proc., 52(a): The Role of Counsel in Preparation of Special Findings of Fact: Roberts* v. *Ross*, 344 F. 2d 747 (3d Cir. 1965). 51 Cornell Law Quarterly 567).

Findings of fact on every material issue are a fundamental requirement. The findings must support the ultimate conclusions reached by the Court. This is especially true here since the Court of Appeals relied on the Trial Judge's opinion for the cause of the disaster.

The ultimate test as to the propriety of findings is whether they are sufficiently comprehensive to provide a basis for decision and supported by the evidence (*Maher* v. *Hendrickson*, 7 Cir. 188 F. 2d 700, 702).

The findings of fact herein do not support the Trial Judge's opinion. The Trial Judge, in his opinion, stated that he placed great weight upon the testimony of certain of the respondent's eyewitnesses and experts. A perusal of the record indicates that these witnesses tied themselves into contradictory knots. Yet this is the sort of testimony that found favor with the Trial Judge—and gave the Court of Appeals such doubts as to the cause of the crash.

A District Court Judge has the duty to carefully consider, weigh and determine the accuracy of the proposed findings and whether or not they are supported by the evidence (*Continental Connection Corp.* v. *Houston Fearless Corp.*, 350 F. 2d 183, 187).

The Hon. Merrill E. Otis stated on the subject of improving the process of the District Courts making findings of fact and conclusions of law:

"It seems to me that the statement of findings and conclusions is of the very essence of the judicial func-

tion and that it should not be surrendered by the judge to counsel, however able . . . It is impossible for counsel in a case in which they are engaged to do anything impartially. They are bound to color findings they suggest . . ." (1 FRD 83, 85, January 6, 1940).

Conclusion

This action was tried solely on the question of liability for the crash. Involved in the question of determining liability were a myriad of factual questions.

The trial lasted continuously for 3 weeks. This was a case which demanded that the Trial Judge make detailed findings of fact because of the contradiction among the various eyewitnesses and experts.

The Court of Appeals pointed out its unhappiness at having to decide this case without detailed findings made independently by the Trial Judge. The findings of fact submitted by the respondent and virtually adopted *in toto* by the Trial Judge failed to aid the Appellate Court; and was an abuse of Rule 52(a) of the Federal Rules of Civil Procedure.

For these reasons, the petition for a Writ of Certiorari should be granted.

Dated: New York, July 3, 1968.

Respectfully submitted,

HARRY H. LIPSIG,
Attorney for Appellants.

HARRY H. LIPSIG,
RICHARD S. PERLES,
JACK STEINMAN,
Of Counsel.

APPENDIX A

Judgment

UNITED STATES DISTRICT COURT

SOUTHERN DISTRICT OF NEW YORK

62 Adm. 681

62 Adm. 682

61 Civ. 798

[SAME TITLES]

The above entitled actions having been consolidated for all purposes, and the issues having come on regularly for trial before the Honorable Irving Ben Cooper, United States District Judge,
non-jury on April 10, 11, 12, 13, 14, 17, 18, 19, 20, 21, 24, 25, 26, 27, 28, and May 1 and 2, 1967, and the Court having granted the motions of the defendants The Goodyear Tire and Rubber Company and Edwards Company, Inc., to dismiss the complaint as to them, and the Court at the conclusion of the trial having reserved its decision as to the remaining defendant, and the Court thereafter on June 15, 1967 having filed its memorandum opinion in favor of the defendant Goodyear Aircraft Corporation, and having directed that findings of fact and conclusions of law be submitted, and findings of fact and conclusions of law having been signed and filed on June 30, 1967, it is

ORDERED, ADJUDGED and DECREED: That the actions as to the defendants The Goodyear Tire and Rubber Company and Edwards Company, Inc., are hereby dismissed, and it is further

ORDERED, ADJUDGED and DECREED: That the defendants Goodyear Aircraft Corporation, Goodyear Tire and Rub-

ber Company and Edwards Company, Inc., have judgment against the plaintiffs Ruth Montgomery, as Executrix of the Estate of Orion Montgomery, deceased; Mary Lucille Pipes, Administratrix of the Succession of Robert Hugh Pipes, deceased; Margaret Anne Rosley, Administratrix of the Goods, Chattels, Rights and Credits which were of Frank James Rosley, deceased; Lila Lee Thompson, temporary Administratrix of the Estate of Steve Barton Thompson, deceased; Barbara G. Leonard, as Administratrix Ad Prosecequedum of the Goods, Chattels and Credits which were of Robert Edward Leonard, deceasd; Nancy Mae Turner, as Administratrix of the Estate of Edward E. Turner, Jr. deceased; Freda M. Furney, as Administratrix of the Goods, Chattels and Credits which were of Frederick Allen Furney, deceased; Maureen Clapper, as Administratrix of the Goods, Chattels, and Credits which were of Richard H. Clapper, deceased; Vincent Godbold, as Administrator of the Estate of Henry Vincent Godbold, deceased; Catherine R. Coutu, as Administratrix ad prosequandum of the goods, chattels and credits which were of Leo Coutu, deceased, late of Ocean County and Laurice Saniuk as Administratrix ad prosequandum of the goods, chattels and credits which were of Joseph J. Saniuk, deceased; dismissing the complaint, and it is further

ORDERED: That the Judgment entered herein on July 13, 1967 contained an error as it did not provide for all the parties herein, and that said judgment be and hereby is vacated.

Dated: New York NY
July 18 1967

JOHN J. OLEAR, JR.
Clerk

Approved:
IRVING BEN COOPER
U. S. D. J.

APPENDIX B

Respondents' Request for Findings of Fact and Conclusions of Law

UNITED STATES DISTRICT COURT

SOUTHERN DISTRICT OF NEW YORK

62 Adm. 681
62 Adm. 682
61 Civ. 798

[SAME TITLES]

Pursuant to the Court's direction set out in the Memorandum of the Court dated June 14, 1967 and filed June 15, 1967, respondent Goodyear Aircraft Corporation herewith submits its Request for Findings of Fact and Conclusions of Law, as follows:

FINDINGS OF FACT

The Parties

1. On July 6, 1960 ZPG-3W Airship United States Navy BuNo 144242 (the "242") crashed into the Atlantic ocean off the coast of New Jersey. Eighteen of twenty-one service men aboard were killed. Libelants are the representatives of eleven of the deceased servicemen and bring suit for their wrongful death. The libelants, their respective decedents, other claimants on behalf of whom libelants claim, and their relationships to their respective decedents, are as follows:

Libelants' Decedents and Naval Rank or Grade	*Libelants and Relatlationship to Decedent*	*Other Claimants Named in Libels and Relationship to Decedent*
Richard H. Clapper, LT JG, USNR	Maureen Clapper, Wife	Cheryl Joanne Clapper, Minor Child

Libelants' Decedents and Naval Rank or Grade	*Libelants and Relatlationship to Decedent*	*Other Claimants Ne in Libels and Relaship to Deceden*
Leo Joseph Coutu, GM-1/AT	Catherine R. Coutu Moss, Wife	Leo Coutu, Minor Child
Frederick Allen Furney, AMS-2	Freda M. Furney Albright, Wife	Andria Diane Furne Minor Child
Henry Vincent Godbold, ACWAN	Vincent E. Godbold, Father	Mary Godbold, Mother
Robert Edward Leonard, LT JG, USNR	Barbara G. Leonard, Wife	William Leonard, Minor Child
Orion V. Montgomery, LT, USNR	Ruth Montgomery McFarland, Wife	Vern Orin Montgom Craig Allen Montgo Eric Leigh Montgo Kaye Louise Montg ery Kim Illene Montgo Marcia Marie Mont gomery, Minor Children
Robert Hough Pipes, ENS, USNR	Mary Lucille Pipes Keele, Wife	Lisa Ann Pipes Minor Child
Frank James Rosley, AT-1	Margaret Anne Rosley Carlson, Wife	Ellen Rosley, Judith Rosley, Minor Children
Joseph J. Saniuk, LT, USN	Laurice Saniuk, Wife	
Steven Barton Thompson, AD-2	Lila Lee Thompson, Mother	Walter B. Thompso Father Jerry A. Thompson, Brother Beverly Jane Thom Nancy Sue Thomps Burnett, Minor Sist
Edward E. Turner, Jr., ACW-2	Nancy Mae Turner Fedoruk, Wife	Diane Lyn Turner, Cynthia Dawn Turn Minor Children

2. Respondent Goodyear Aircraft Corporation ("Goodyear Aircraft") is a corporation organized and existing under the laws of the State of Delaware and has its principal place of business in Akron, Ohio.

3. In the period of 1954 to 1960, Goodyear Aircraft was engaged in the business of designing, manufacturing and selling pressure airships to Navy specifications for use in airborne early warning, or radar detection of approaching hostile aircraft, and other defense missions.

4. Goodyear Aircraft designed and manufactured the 242 pursuant to cost-plus-fixed-fee contracts with the United States and Government specifications prescribed in these contracts and related documents.

5. Respondent The Goodyear Tire & Rubber Company ("Goodyear Tire") is a corporation organized and existing under the laws of the State of Ohio and has its principal place of business in Akron, Ohio.

6. In 1956 respondent Goodyear Tire was engaged in the business of processing, distributing and selling fabric for airship envelopes.

7. Respondent Goodyear Tire processed the fabric for the envelope (designated D-619) of the 242 pursuant to specifications approved by the Navy Department. The fabric was processed at Akron, Ohio, inspected, tagged, packed in rolls and shipped to respondent Goodyear Aircraft in Litchfield Park, Arizona.

8. Respondent Edwards Company, Inc. ("Edwards") is a corporation organized and existing under the laws of

the State of Connecticut and has its principal place of business in Stamford, Connecticut.

9. During the period of time herein material, Edwards was in the business of manufacturing, distributing and selling warning bells suitable for use in aircraft.

10. On July 6, 1960, the 242 contained a helium low pressure warning system, one component of which was a J-3 Bell manufactured by respondent Edwards. The use of this type of bell in this system had been expressly approved by the Navy.

ZPG-3W Airship BuNo 144242

11. The 242 was the prototype of a new advanced class ZPG-3W of long-endurance airborne early warning weapons developed and procured by the Department of the Navy for its use in conducting the defense of the United States, pursuant to a mission designated, as that of other Navy advanced weapons systems, by the Office of the Chief of Naval Operations. It was 403 feet long, had a total weight of about 83,000 pounds, and had a theoretical envelope volume of 1.5 million cubic feet. The airship represented an advance of the state of the art in terms of its much greater size than that of previous airships, overall structural and component characteristics and performance, and, in particular, the stress analysis, size, design, and structural features of the envelope and its seams. The construction of the D-619 prototype envelope involved new fabrics, a new thread combination, the use of a cement which was still developmental, and required a number of technical advances in production techniques.

The automatic air pressure system also incorporated many unique features, and the electronic and electrical systems constituted the largest such complex in an aircraft at the time. As the first ZPG-3W airship produced, it was used as the structural and performance test vehicle to demonstrate that the design conformed to specifications. The development of the details of the design, applicable safety factors and controls, the production process itself, static and flight testing and inspection, were all subject to continuing surveillance by Naval engineers, pilots and inspectors, with final control of each phase of the process residing in the Navy. The amount of money used in the development, production and testing, the time for and condition of the airship upon delivery to the Navy, and the time for and condition of the airship upon delivery to the Fleet for operational purposes, were also controlled by the Navy with a view to best serving the national defense.

12. The general theory of the 242's operation was comparable to that applicable to smaller airships. It was a so-called nonrigid airship in which the structural shape or rigidity of the gas-containing fabric envelope was maintained not by a rigid metal framework, but by keeping the contained gas constantly at a pressure slightly higher than the surrounding atmospheric pressure, the difference (*i.e.*, gauge, rather than absolute pressure) being only about .1 pound per square inch or 2 to 3 inches of water. Any increases or decreases in pressure causing the gas to expand or contract, which resulted from altitude or temperature changes, leaks, or other causes, were compensated for by adding or removing air from variable volume internal fabric ballonets, through a number of electrical or mechanical systems, both automatically and manually controlled.

The displacement of air by the lighter-than-air helium provided about 83,000 pounds of static lifting force. In addition, the airfoil shape of the fully inflated envelope and the tail surfaces provided dynamic lift like that of an airplane of varying amounts when flying into a wind or the relative wind created by the airship's forward motion produced by the propellers. Both the static lift due to the lifting gas, and the dynamic lift caused by airflow over the airfoil shape of the envelope depended upon the envelope remaining intact, and, in addition, the proper dynamic lift development depended upon its retaining its design pressurized shape.

Manufacturing, Testing and Service of the 242.

13. The D-619 envelope of the 242 was manufactured at Litchfield Park, Arizona, by Goodyear Aircraft between July 1956 and January 29, 1957. The H-1 gore seam, or topside centerline seam of the D-619 envelope, between panels 27 and 33 (about ¼ of the way aft from the nose), was manufactured as a single subassembly seam in November or December 1956. Within this subassembly, panels 32 and 33, gore H-1, were cut from rolls 2501 and 3480, respectively, of Goodyear Tire fabric code N 113A510, which had been shipped to Goodyear Aircraft in Arizona on or before September 1956. The envelope was packed on or about February 13, 1957, and erected and inflated in the Goodyear Aircraft Airdock in Akron, Ohio on or about April 17, 1957. The first flight of the 242 occurred on or about July 21, 1958. After the final acceptance flight and some 49 other flights while at Akron, the airship left Akron, Ohio with a Navy crew on September 24, 1959, and was delivered to Lakehurst, New

Jersey Air Station and accepted by the Aircraft Test and Development Department ("AT&D") on or about September 26, 1959. The airship was accepted by Airship Airborne Early Warning Squadron One ("ZW-1"), Naval Air Station, Lakehurst, New Jersey, on January 29, 1960, and remained in the possession of ZW-1 at all material times thereafter until the crash on July 6, 1960.

The 242 was flown as follows:

		Hours	*Hours*
A.	Originating in Akron:		
	By Goodyear Aircraft pilots	363.0	363.0
	By Navy crews (Preliminary Evaluation and Final Acceptance)	42.0	
	By Navy crew (delivery Akron to Lakehurst)	5.0	47.0
	Sub-total, Akron	(410.0)	
B.	Originating in Lakehurst:		
	AT&D	95.0	95.0
	ZW-1 (prior to May 30, 1960)	144.1	
	ZW-1 (after May 30, 1960)	113.8	257.9
	Sub-total, Lakehurst	(352.9)	
	Sub-total, by Navy crews		399.9
	Total		762.9

Inspections of the type termed Intermediate and Major in Handbook of Inspection Requirements, Chief, Bureau of Aeronautics, NAVAER 01-195 PDA-506, revised May 1, 1959, were conducted on the 242 as follows:

Bureau of Aeronautics Representative—Akron, Ohio:

Intermediate—November 5, 1958
Intermediate—April 29, 1959
Major —September 23, 1959

AT&D,

Naval Air Station, Lakehurst, New Jersey:
Intermediate—January 26, 1960

ZW-1,

Naval Air Station, Lakehurst, New Jersey:
Intermediate—February 1, 1960
Intermediate—May 30, 1960

Special inspections of the topside forward area of the D-619 envelope were also conducted as follows:

By Francis Jackson (civilian) Overhaul and Repair Department ("O&R"), Naval Air Station, Lakehurst, New Jersey, in October 1959.

By Charles D. Hemphill, Jr., Aviation Structural Mechanic 3d Class, ZW-1, on May 18, 1960.

By Alfred C. Lane, Jr., Aviation Structural Mechanic 2d Class, ZW-1, on June 20, 1960.

The following accidents to the 242 occurred after delivery at Naval Air Station, Lakehurst, New Jersey:

Collapse of starboard landing gear, during normal operation, sudden engine stoppage and damage to starboard propeller	February 25, 1960
Lighting strike	May 12, 1960
Kiting on Mast	June 26, 1960
Kiting on Mast	July 4, 1960

14. The only evidence in the record with respect to the standard of airship envelope fabrication pertained to Goodyear Aircraft and O&R at Lakehurst Naval Air Station, New Jersey. The seam fabrication techniques of Goodyear Aircraft were in all material respects identical with those used by O&R. The same techniques were applied to identical fabric, cement, tape and thread materials.

15. Both during the envelope assembly process at Goodyear Aircraft's plant in Litchfield Park, Arizona, and during the erection, inflation and static and flight test program for the envelope and the airship at Akron, both Goodyear Aircraft and Bureau of Aeronautics Representative inspectors made repeated and detailed inspections of the entire airship, and of the envelope in particular.

16. The 1844C cement used in making the seam was first used in production in late 1955. By February of 1956 it had been determined that the standard seam-making procedure was effective at relative humidities as high as 60 percent. By the Fall or early Winter of 1956, it was known that the standard seam-making procedure was effective for making seams with good adhesion at relative humidities up to 70 percent. This standard of 70 percent was also used as a control procedure by O&R. Humidity was checked continually by a clockwork, 7-day recording hygrometer equipped with a red light to warn of exceeding control limits visible both in the foreman's office and in the production area, and checked weekly at 10 points throughout the production area by a whirling hygrometer. On occasions when the humidity exceeded 70 percent, adjustments were made to humidifiers or the heating system in the

Arizona plant to bring the relative humidity within acceptable limits. If humidity could not be controlled at less than 70 percent, it was the practice to terminate cementing and confine the workers to other operations. There is no evidence that during the period of November and December, 1956 the relative humidity in the Arizona plant exceeded 70 percent, or that any cementing operations were conducted during that period while the humidity exceeded acceptable limits.

17. The security of the seam was indirectly confirmed by both a pre-erection proof test at 4.5 inches of pressure and a flight test at 4.25 inches, greatly in excess of the maximum routine operating pressure of 3.0 inches.

18. I find that Goodyear Aircraft's airship assembly procedures, supervisory practices and testing and inspection were not only in accord with the standard of the industry, but represented that exceptionally high degree of care required for manufacture of a complex aircraft.

19. There is no direct way of testing the degree of adhesion of a completed airship gore seam which is not destructive of the seam. The only method of determining the quality of the seam is a visual inspection for visible indications of defective cementing or slipping of the seam. As late as October 1959, such an inspection of the topside forward H-I gore seam by Francis Jackson, a Navy civilian fabric mechanic with 16 years of airship fabric experience, did not reveal any visible defects.

The Flight of July 6, 1960

20. On July 5, 1960, the 242 was flown on an experimental exercise to test and develop procedures for employment of ZPG-3W class airship in locating and retrieving missile nose cones. After landing, supervised by the Ground Handling Officer at about 10:45 P.M., the 242 was subjected to routine ground handling and preparations for the next day's flight, which was originally scheduled as a routine 24-hour training flight including a "PAC Check," or determination of a pilot officer's qualifications to act independently as a Patrol Aircraft Commander, for Lt. William J. Carey. At or about 11:45 P.M., E.D.T., July 5, 1960, a message was received at ZW-1 from the Coast Guard Commander, Eastern Area, directing participation in a search for an overdue Bermuda Race yacht, the Vat 69. Since the scheduled flight of 242 involved only routine training, Commander Duncan, ZW-1 Executive Officer, assigned the search and rescue mission to the airship.

21. The identity and duty assignments of the Combat Air Crew on the flight in 242 on July 6, 1960 were as follows:

LT. Joseph J. Saniuk, USN, Command Pilot
LT. William J. Carey, USNR, Co-Pilot
LTJG. Walter E. Jennings, USN, Co-Pilot
LTJG. Richard V. Hall, USNR, Co-Pilot
LTJG Richard H. Clapper, USNR, CIC Officer
LTJG Robert E. Leonard, USNR, CIC Officer
Lt. Orion V. Montgomery, USNR, CIC Officer
ENS. Robert H. Pipes, USNR, Co-Pilot
Thompson, Steve B., AD2, Flight Mechanic

Furney, Frederick A., AMS 2, Flight Rigger
Culligan, Joseph G., AEM 2, First Flight Electrician
Rosley, Frank J., AT 1, Second Flight Technician
Turner, Edward B., Jr., ACW 2, Air Controller
Kuesel, Roger C., ACW 3, Air Controller
Blalock, Francis E. AD 1, First Flight Mechanic
Contreras, Antonia (n), AEM 3, Electrician
Garrison, Bruce O., ATN 3, Technician
Shabel, Jerry E., ATN3, Technician
Godbold, Henry V., ACWAN, Air Controller
Saumier, Donald L., ACW 3, Air Controller
Coutu, Leo J., GMGI/AT, First Flight Electronicsman

The crew loaded on personal gear and took off positions, Lt. Carey in the left, or pilot's seat, and Lt. Saniuk in the right, or copilot's seat. After takeoff at 7:25 a.m., the Command Pilot gave the Ground Handling Officer an Operations Normal Report, indicating that the aircraft and all required systems were operating normally. The flight seems to have been routine until just prior to the crash. The search and rescue mission was terminated by a message received at about 1 p. m. At about 2 p. m. the 242 descended to an altitude of 150 feet at Barnegat Lightship in an aerial photograph exercise and rose shortly thereafter to 500 feet. The weather was mild, with surface wind of south 10 knots, and no indication of turbulence, although there were reports of some clouds at Atlantic City and Lakehurst. The airship static condition within the few minutes prior to impact was close to equilibrium, neither heavier nor lighter than air, within about 1,000 pounds, depending on superheat, or the differ-

ence between the temperature of the helium gas inside the envelope and that of the atmosphere.

22. The 242 crashed into the Atlantic Ocean at 39°44.3′ North latitude, 73°46.1′ West longtitude, a few miles southeast of Barnetgat Lightship, at or about 2:29 p. m. E. D. T., July 6, 1960.

23. The location of the flight crew immediately prior to the impact was:

LT. Saniuk Pilot's seat; in the cockpit
LT. Carey Cockpit area
ENS. Pipes " "
Shabel " "
Thompson " "
LTJG Leonard " "
LT. Montgomery CIC area
Saumier CIC, ECM Operator's Station
(Survivor)
Godbold CIC area
Blalock Stern Compartment
Contreras Stern Compartment, fell forward into
(Survivor) Elec-Tech Compartment
Furney Galley
LTJG Jennings Lower forward port bunk
LTJG Hall Center forward starboard bunk
LT. Clapper Lower forward starboard bunk
Kuesel Lower aft starboard bunk
Culligan Middle aft port bunk
(Survivor)
Turner Middle aft starboard bunk
Coutu Lower aft port bunk

Rosley Starboard side, galley table
Garrison Radome
Eyewitness, Survivor and Salvage Evidence

24. In post-accident salvage operations, most of the airship was recovered, including 98 percent of the envelope. A tear was found in the salvaged envelope about 133 foot long running along the topside forward center line (the H-I gore seam) of the airship. For about 40 inches in panels 32 and 33, the seam itself was open. In the remainder, the tear was in the fabric near the seam.

25. If the envelope tear had developed in flight the helium would have immediately escaped therefrom, causing the airship to plunge instantaneously approximately 500 feet to the ocean. None of the credible eyewitnesses saw such a tear while the airship was still in flight. The tear, which all agreed was a high speed tear, would have taken three to four seconds to develop, and from that time to the time of impact with the ocean no more than about fifteen seconds could have elapsed.

26. I find that the airship did not immediately crash into the ocean once it began its fatal descent. Credible eyewitness testimony leads to the conclusion that it took two to three minutes from the time the airship was observably in trouble (wringled, sagged, or "banana" shaped, reflecting an internal pressure of less than 1 inch of water, about half the minimum required operating pressure of 1.5 inches) until the airship impacted with the water. During much of this time, the airship was gradually descending.

27. I find that the airship did not burst open in the air.

28. I find that while the airship was in flight at about 500 feet it lost an excessive amount of pressure. It is not

uncommon for an airship to lose pressure, as a result of a decrease in altitude, a reduction in superheat, an open valve or a small hole in the envelope. Normally, such a loss of pressure is compensated for by one of several manual and automatic systems aboard the airship. In this case, however, the loss was not compensated for, thus causing the airship to appear in a banana shape, which persisted for at least two minutes before the airship lost so much pressure that it buckled rapidly, causing a shift in the distribution of helium lifting gas relative to the aggregate mass of the airship, pitching the nose down like a pendulum into the final plunge to the sea.

29. I find that upon impact with the ocean the envelope of the airship was intact. Upon striking the water, the forward part of the 44,000 to 45,000 pound airship car was substantially damaged, filled with water, and sank rapidly. As the car sank, pulling the envelope down, there was a rapid increase in pressure within the envelope. The tear along the topside centerline seam was caused by contact with the water of the envelope, together with the increase in pressure and the reaction forces created by the impact of the car which were transmitted by the forward catenary cables to the envelope, which was deformed at a large crease running transversely across the forward part of the envelope. The tear originated at an impact-induced burst in the fabric adjacent to the portion of the seam that was open, not in the seam itself. It was an effect, not a cause, of the accident.

30. The strength of the fabric in panels 32 and 33, gore H-1, when tested after salvage was well over specification requirements, and roughly 90 percent of 1956 original roll tests. The adhesion of the two plies of the fabric was equal to or greater than the original roll tests made in 1956 at the time of manufacture. There was no deficiency

in adhesion to the underlying cloth of the outside coat of the fabric of vulcanized neoprene. In short, any claim of any deficiency in this fabric is unsupported.

31. I find that the seams of this airship were properly fabricated and that the strength of the seams met design requirements and was adequate for all operations within the limitations on pressure and manuevers established in the Navy Flight Handbook. It is undisputed that samples cut across the salvaged H-I seam in panels 31 and 32 showed adequate adhesion on strip tests, the fabric breaking before the seam at values in excess of the minimum strength requirements and approximately 90 percent of its original strength. Portions of the H-I gore seam immediately adjacent to an approximately 40-inch section in panels 32 and 33 which opened, were peeled by hand for a short distance and were found to have good adhesion.

32. The Edwards J-3 helium low pressure warning bell was considered a secondary warning device as opposed to the liquid and mechanical manometers, one of each of which was located on the pilot's panel. A visual inspection of the bell when salvaged 9 months after the airship left the hands of Goodyear Aircraft, disclosed it had been inoperative due to worn-out components. I find that for some time prior to the commencement of the flight on July 6, 1960, the bell was inoperative due to long usage.

33. Libelants failed to prove that any manufacturing defect was the cause of the accident. While the burden did not rest on Goodyear Aircraft to do so, respondent demonstrated throughout the course of trial the extreme precautionary measures it took, with Navy approval, throughout the manufacturing process, and subsequent thereto, to

insure a completely safe product. In addition, inspections of the finished product were numerous, detailed and thorough.

34. Emergency action for the low pressure condition described by the eyewitnesses included one or more of the following: pulling back on the control column slowly to produce an increase in altitude, adding air to the ballonets through opening dampers and turning on blowers, reducing air speed, and dropping slip tanks or dumping liquid ballast.

35. Immediately prior to the final 45-degree dive into the ocean, credible eyewitnesses reported the airship was in a gradual descent. At impact the engines and propellers were developing thrust equivalent to a 45-knot forward speed. No eyewitness reported the dropping of slip tanks or the dumping of ballast, water or fuel, prior to impact. Four of the slip tanks were found in their respective bays under the car when the airship was salvaged, and the fifth was reported by a survivor to be floating immediately adjacent to the car after the crash. When the airship was salvaged, the pilot's and co-pilot's seat belts were found intact and unbuckled. There is no evidence in the case to indicate that anyone on board realized that the airship was in peril prior to the commencement of the final 45-degree dive.

36. In the ZPG-3W airship, the automatic pressure system provided air intake through the four dampers of the center ballonets, only. Upon salvage of the main DC distribution circuit-breaker panel in the Elec-Tech Compartment, two circuit breakers controlling the center ballonet dampers and the air valve control circuit breaker,

which controlled these dampers and other functions of the pressure system, were found in the off or disconnected position. The positions of other circuit breakers on this panel were consistent with known pre-impact situations affecting the related electrical systems. The servo drive was demanding air and certain other portions of the automatic air pressure control system were in a position which indicated that the airship was in a low pressure condition at the last time the system was operated.

Respondent Goodyear Aircraft's Second Affirmative Defense

37. I find:

that libelants' decedents were Naval personnel on active duty who died while engaged in military duty as members of the flight crew of a United States Navy military airship;

that the airship was the prototype of an advanced weapons system designed and made under Navy engineering supervision, and subject to Naval inspection, cost limitations and time requirements, expressly for use by the Navy in the national defense after its own flight testing and inspection, and was not an article intended for distribution to an indeterminate class of general consumers for immediate use without further inspection or testing; that under the cost-plus fixed fee contract under which the airship was manufacturer, pursuant to established defense procurement policies embodied in Armed Services Procurement Regulations, the United States is obligated to reimburse Goodyear Aircraft for its expenses and any judgment or Navy-approved settlement of these cases; and

that libelants and other claimants on behalf of whom these actions are brought have been recipients of the statutory benefits administered by the Department of Defense or the military departments, Veterans Administration, or Social Security Administration, established for relief of service personnel or next of kin of service personnel who die or are injured in military service.

Conclusions of Law

1. Libelants failed to meet their burden of proving by a preponderance of the evidence those matters in issue at trial which were fundamental elements of their claim that the airship accident was caused by action or inaction of the respondents, including the following:

Libelants failed to prove that the crash of the ZPG-3W airship BUNo 144242 which resulted in the death of their decedents was due to a seam opening in the envelope on the top of the airship while it was still in flight;

Libelants failed to prove that such seam failed because of improper manufacture;

Libelants failed to prove that fabric used in constructing the seam was inherently defective and improper for the use intended;

Libelants failed to prove that the helium low pressure warning bell was defective for the purposes intended or that such bell was of improper design and manufacture;

Libelants failed to prove that Goodyear Aircraft or the other respondents were negligent or breached

any warranties, express or implied in the manufacture of the airship or its parts;

6/30/67

s/I. B. C.
U.S.D.J.

~~Libelants failed to prove that there was an absence of any negligence on the part of libelants' decedents contributing to the accident.~~

2. There is a complete failure of proof that any act or omission by any respondent was the proximate cause of the accident which occurred 9 months after the completed airship or its parts were last in the possession of respondents.

3. In the light of the foregoing conclusions, we express no view as to whether or not some or all of those facts referred to by Goodyear Aircraft as supporting its Second Affirmative Defense constitute a defense to these actions.

Dated: New York, New York
June 27, 1967

Respectfully submitted,

CAHILL, GORDON, SONNET, REINDEL & OHL
Proctors for Respondent
Goodyear Aircraft Corporation

Approved 6/30/67:

s/ IRVING BEN COOPER,
U.S.D.J.

APPENDIX C

Opinion by Irving Ben Cooper, D. J.

62 A. D. 681
62 A. D. 682
61 Civ. 798

UNITED STATES DISTRICT COURT

SOUTHERN DISTRICT OF NEW YORK

[SAME TITLES]

IRVING BEN COOPER, D. J.

On July 6, 1960 ZPG-3W Airship United States Navy Bu No. 144242 crashed into the Atlantic ocean off the coast of New Jersey. Eighteen of twenty-one servicemen aboard were killed. Libelants are the representatives of eleven of the deceased servicemen and bring suit for their wrongful death.

The present case was assigned to this Court for all purposes as a Rule 2 case on April 1, 1963. After extensive discovery proceedings, the case came on for trial without a jury on April 10, 1967 and was concluded on May 2, 1967. The principal respondent, Goodyear Aircraft Corporation, manufactured the airship under the terms of a contract with the Navy. The case against the other two respondents, Edwards Company, Inc. and Goodyear Tire & Rubber Company, manufacturers of the low pressure warning bell and the envelope fabric respectively, was dismissed during the third day of trial.

The 242 airship was designed as an all weather advanced early warning aircraft. It was 403 feet long, had a total weight of about 83,000 pounds, a theoretical volume of 1.5 million cubic feet. With many unique features, it was the largest in its class although not a radical departure

from prior models. The airship's envelope contained helium under pressure thereby creating a tension which gave the airship its structural integrity. The airship normally cruised at a envelope pressure of 2 inches of water. The pressure, however, was not constant; rather it continually changed with variations of temperature and altitude. A number of systems, both automatic and manual, provided the controls to adjust the changes in pressure.

When the airship was salvaged from the ocean, a tear was found in the envelope about 133 feet long running along the topside forward center line (the H-I gore seam) of the airship. It is libelants' contention that this tear developed while the airship was in flight and was the cause of the crash into the ocean. They contend that the tear commenced in the seam between panels 32 and 33 as a result of its defective manufacture by respondents. Respondents on the other hand contends that the seam was properly manufactured; that the tear commenced in the fabric adjacent to the seam and was caused by the airship's impact with the ocean.

By unequivocal stipulation between the parties, it is upon the resolution of this threshold question—whether the 133 foot tear developed upon impact or while the airship was in flight—that liability depends. Failure to sustain their imperative burden of proof thereon would warrant dismissal of libelants' claims.

• • •

If the envelope tear had developed in flight, the helium would have immediately escaped therefrom, causing the airship to plunge instantaneously, approximately 500 feet

to the ocean. The tear, which all agreed was a high speed tear, would have taken three to four seconds to develop, and from that time to the time of impact with the ocean no more than about fifteen seconds could have elapsed.

Contrary to libelants' contention, we find that the airship did not immediately crash into the ocean once it began its fatal descent. Credible eyewitness testimony leads us to conclude that it took two to three minutes from the time the airship was observably in trouble—a time very far in excess of the rapid descent that would have occurred had the envelope tear developed while the airship was still in flight.

In support of this conclusion, we place great weight upon the testimony of Benjamin Edwards, the captain of a fishing boat, who observed the airship's entire descent through binoculars. Both the time that he stated it took the airship to fall (two to three minutes), and the flight characteristics he ascribed to it on descent (gradual), are totally inconsistent with libelants' theory of the accident.

We were also impressed with the testimony of Commander Murphy, a pilot flying at a 45° angle above the airship when it began its descent. The Commander, who had about 3,000 hours of flying time (about 70% of which was over water), effectively demonstrated his ability to observe the details of the crash scene, and testified that he saw no tear in the airship from the time he first observed it until impact. The witness Lopuszynski, the radar operator flying with Commander Murphy, supported the latter's testimony stating that he observed the airship intact at the moment before impact.

Finally, Albert Keppler, another eyewitness, testified that he observed the airship just before the crash from a

fishing boat about two to three miles away. Keppler stated that he observed what appeared to be a tear running vertically downward from the top of the airship to just below the airship's horizontal center line. After being told long before trial that no tear was discovered in the salvaged envelope (see stipulation) where he had described it, Keppler concluded that what he thought was a tear must have been a crease. Keppler convincingly testified that from the time he saw the crease first develop until the airship hit the water one and one-half to two minutes elapsed.

* * *

Libelants' case, in the final analysis, rests upon portions of the testimony of several eyewitnesses, the three survivors and an expert witness, Joseph Vincelli. We find completely lacking in conviction the testimony (particularly Sellinger's) of those eyewitnesses who stated that they observed what libelants contend would be interpreted to be a tear in the envelope while the airship was in flight. We find that the eyewitness testimony to the contrary overwhelmingly supports in this respect the interpretation of the evidence advanced by respondent.

Culligan, the one survivor who physically testified at trial, swore that he was asleep in the bunk room just before crash:

> I woke up and the ship was diving in a nose-down attitude. I saw daylight coming from the astrodome.[1] I don't remember impact. (Tr. 35, 36.)

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[1] The astrodome is a clear plastic bubble which permits members of the crew to look up into the inside of the envelope. If there are no holes in the fabric the view is one of blackness.

Libelants contend that Culligan awoke before impact and observed the envelope tear while the airship was still in flight. Respondents, on the other hand, contend that Culligan, who was only twenty years old at the time and admittedly a sound sleeper, did not awaken until impact.

While we find that Culligan was sincere in his effort to testify truthfully, and although we believe he was suddenly awakened shortly before impact, we found his testimony on this vital point unconvincing. We are uncertain that he actually saw daylight; that if he did, it is more likely that he observed daylight after impact.

The two other survivors, whose depositions were put into evidence, testified that they heard a loud noise as the airship began to fall. Libelants contend that the noise they heard was the bursting of the seam. However, that noise is equally supportive of respondent's position that it followed the breaking up of primary or secondary members (including catenary cables) caused by the airship's excessive loss of pressure.

* * *

Libelants' expert, Vincelli, testified that it was his opinion, based on his official participation in the accident investigation, that the tear commenced in the H-I gore seam at panels 32 and 33. He asserted that the tear originated in a shear failure and was caused either by excessive humidity or the presence of foreign matter on the fabric when the seam was cemented. He concluded that the seam was improperly bonded, because when it separated all the cement remained on one side of the seam and the threads were on both sides. We find this latter point inconclusive. Moreover, Vincelli's hypothesis of excessive humidity or dirt as the cause of the rupture is unsupported by any proof and was, in fact, belied by respondent's proof of the

meticulous care taken during the entire manufacturing process. While Vincelli did positively state that the seam could not possibly have split open on impact, his failure to support this conclusion with convincing reasons leaves it inconclusive.

We were considerably more impressed by the expertise of respondent's expert witnesses. Bauch, now semi-retired, was an established stress analyst. He identified strain marks on the envelope fabric and concluded that the tear commenced in the fabric due to an overload of stress and then the tear ran into the seam. Bauch together with Pipitone analyzed the stresses placed on a low pressure envelope that struck water and concluded that the tear in question was caused by impact. Their reasoning in support of this conclusion is impressive. Pipitone stated and we believe that the tear in question was caused by "contact with the water of the envelope with the reaction forces created by the car, which were transmitted by the catenary, forward catenary cables." (Tr. 2068, 2069.)

• • •

In short, libelants failed to convincingly establish that the airship burst open in the air. They did not prove that any manufacturing defect was the cause of the accident. While the burden did not rest on Goodyear to do so, respondent demonstrated throughout the course of trial the extereme precautionary measures it took, with Navy approval, throughout the manufacturing process, and subsequent thereto, to insure a completely safe product. In addition, inspections of the finished product were numerous, detailed and thorough.

• • •

As for respondent's contention that the accident was caused by fatal mistakes on the part of certain members of the crew, we observe it appears to have validity, but it is neither respondent's burden to prove it nor the court's responsibility to determine if it has been legally established.

We do find, however, that while the airship was in flight at about 500 feet it lost an excessive amount of pressure. There is ample evidence in the record to show that it is not uncommon for an airship to lose pressure. Sometimes this could be caused by a loss of altitude, a decrease in superheat, an open valve or a small hole in the envelope (not an unusual occurrence). Normally, a loss of pressure is compensated for by one or several manual and automatic systems aboard the airship. In this case, however, the loss was not compensated for, thus causing the airship to appear in a banana shape (a fact which most of the impressive eye-witnesses observed). The banana shape persisted for at least two minutes before the airship lost so much pressure that it began its final plunge to the sea. Pipitone's theoretical explanation of what would happen to the airship if there was a significant uncompensated loss of pressure comported substantially with the credible eye witness testimony.

* * *

We note, finally, libelants' trial strategy included an attack on respondent's theory of the cause of the crash by showing that the Goodyear and Navy witnesses were so biased as to be incredible. It is no more than fair to say that proof on this score was completely absent. The Navy's interest in the law suit, because of its contract of indemnity with respondent, was conceded, but the sincerity of the individual witnesses was never destroyed.

We see no purpose in making a detailed analysis of the total trial record and are content to point out only some of the total evidentiary highlights. In a "close" case (which this is not) such an approach might be in order. The greatest impact of proof here came from the accredited eyewitness—not alone what they said, but the conviction with which they testified.

We conclude that libelants have not sustained their burden of proof. They have not established that the tear in the airship developed before impact. They have failed to prove any manufacturing defect in the airship.[2] Having decided that libelants have not proved their claim, we do not decide the question of the validity of the second affirmative defense based on *Forea* v. *United States,* 340 U. S. 135 (1950).

Accordingly, the libel is dismissed. Respondent shall submit findings of fact and conclusions of law within two weeks of the filing date of this memorandum.

So ORDERED:

New York, N. Y.
June 14, 1967

IRVING BEN COOPER
United States District Judge

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[2]In addition to claiming that the seam was defective, libelants also contended that the fabric and low pressure warning bell were defective. The latter two claims were not pressed at trial and are patently unsupported by the evidence adduced.

APPENDIX D

Opinion by the United States Court of Appeals for the Second Circuit

UNITED STATES COURT OF APPEALS

FOR THE SECOND CIRCUIT

Nos. 300, 301, 302—September Term, 1967.

(Argued February 21, 1968 Decided April 10, 1968.)

Docket Nos. 31770, 31771, 31772

RUTH MONTGOMERY, etc., *et al.*,

Appellants,

—v.—

GOODYEAR AIRCRAFT CORPORATION,

Appellee.

(Two other cases)

Before:

FRIENDLY and SMITH, *Circuit Judges,* and GIGNOUX, *District Judge.**

Appeal from a final judgment after trial in admiralty in the United States District Court for the Southern District of New York, Irving Ben Cooper, *Judge,* dismissing the appellants' libels. Affirmed.

MURRAY L. LEWIS, New York, N. Y. (Harry H. Lipsig, Joseph B. Castleman and Richard S. Perles, New York, N. Y., on the brief), *for appellants.*

* Of the District Court of Maine, sitting by designation.

Opinion by the United States Court of Appeals for the Second Circuit

PAUL W. WILLIAMS, New York, N. Y. (William A. Runyan, Robert F. Martin, Stephen R. Tisa, and Cahill, Gordon, Sonnett, Reindel & Ohl, New York, N. Y., on the brief), *for appellee.*

SMITH, *Circuit Judge:*

On July 6, 1960, at 2:30 p.m., the U. S. Navy airship Reliance, ZPG 3W, BuNo 144242, a non-rigid two-engined aircraft some 403 feet long, inflated with about 1,500,000 cubic feet of helium, crashed into the ocean off the coast of New Jersey. Eighteen servicemen out of a crew totaling twenty-one were killed or died after the crash. The personal representatives of eleven of the decedents brought libels, consolidated below, based on the Death on the High Seas Act and general maritime law against Goodyear Tire and Rubber Company, manufacturer of the fabric used in the airship envelope, Goodyear Aircraft Corporation, manufacturer of the airship, and Edwards Company, Inc., manufacturer of a low pressure warning bell used in the airship. Judge Irving Ben Cooper, in the District Court for the Southern District of New York, dismissed the claims against Goodyear Tire and Edwards at the conclusions of appellants' direct case and, after trial, entered judgment in favor of respondents, holding that the libelants had failed to sustain their burden of proof as to Goodyear Aircraft. We find no error and affirm the judgment.

No question is raised as to the judgment in favor of Goodyear Tire and Rubber and in favor of Edwards. Appellants attack only the exoneration of Goodyear Aircraft.[1]

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[1] While the United States is not a formal party to the action, it is undisputed that its contract with Goodyear binds the United States to indemnify Goodyear for any recovery against Goodyear as well as the expense of defending against the libels.

Since his was a non-rigid airship, the shape of the envelope depended on sufficient gas pressure. The envelope was filled with helium normally at sufficient pressure to keep the envelope taut, and to provide static lift nearly equal to the weight of the envelope, engines, radome, radar equipment, car, fuel, crew and accessories. The ship was maintained in flight by the addition of the dynamic lift of the outside air over the envelope acting as an air foil when the ship was driven ahead by one or both engines. Pressure in the envelope was subject to variation from a number of causes, altitude, superheat from the sun on the envelope, small leaks of helium, and others. A decrease in altitude caused lowering of pressure. Within the main envelope were four ballonets, which could be inflated with air to reduce the volume of helium and increase its pressure on the envelope. Tanks of fuel and ballast could be jettisoned to lighten ship and cause it to rise.

Appellants claimed that the crash had been caused by a tear in the envelope of the airship which resulted from Goodyear Aircraft's failure properly to bond one of the envelope seams. The tear in question was found after salvage in the fabric of the envelope. It extended for about 133 feet in a relatively straight line topside aft from the nose of the ship along beside the topmost longitudinal seam, interrupted by a three to four foot opening of the seam itself, and then along next to the seam again, to the radome, a structure on the top of the ship housing radar equipment. It is appellants' contention that the tear began at the opening in the seam, and extended from the opening forward to the nose and aft to the radome. Goodyear claims that the crash was caused by changes in air pressure within the envelope which were not properly corrected for by the pilot and crew. It argues that the tear in question resulted

upon the airship's crashing into the water, not while it was in the air. Libelants' case is based on the contention that the seam was improperly made and that it failed in flight causing the 133 foot tear, agreed to have been a high-speed tear.

The court found that libelants "failed to convincingly establish that the airship burst open in the air," and that they failed to prove that any manufacturing defect was the cause of the accident. It did not reach the questions raised by respondents' pleadings of whether a manufacturer acting under a military weapons system development contract may be liable either in negligence or strict liability to persons injured as a result of defects in manufacture, or whether the government contract of indemnity precludes recovery for injury or death of service personnel under the theory of *Feres* v. *United States,* 340 U. S. 135 (1950). Since we uphold the court's determination that the libelants have failed to carry the burden of persuasion on the essential facts of causation, we likewise do not reach the questions sought to be raised by the special defenses.[2]

Although we could wish that the proof were more convincing here as to the true cause of the crash, we cannot say that the court was bound to accept libelants' version. The basis of the determination appears from the court's

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[2] We express no opinion on the assrted defense of governmental immunity under the doctrine of *Feres* v. *United States,* 340 U. S. 135 (1950). Compare *Weyerhaeuser SS Co.* v. *United States,* 372 U. S. 597 (1963); *Ryan Co.* v. *Pan-Atlantic Corp.,* 350 U. S. 124 (1956); *Weyerhaeuser SS Co.* v. *Nacirema Co.,* 355 U. S. 563 (1958); *Crumady* v. *The J. H. Fisser,* 358 U. S. 423 (1959), and *Waterman Co.* v. *Dugan & McNamara,* 364 U. S. 421 (1960).

Nor do we reach the question of whether the fact that the envelope was manufactured under government contract and pursuant to government specifications in any way insulates the manufacturer from liability, compare *Boeing Airplane Company* v. *Brown,* 291 F. 2d 310 (9 Cir. 1961).

opinion.[3] The evidence as to what happened in the period just before the crash was conflicting, particularly in two respects essential to the support of libelants' theory, the time element between the onset of trouble and the impact with the ocean, and the degree of inflation of the envelope when the ship was first in difficulty. The airship had an air sea rescue assignment to search for the yacht Vat 69 reported missing at sea. The airship left Lakehurst on the mission about 7:00 a.m. July 6. An officer aboard was to be checked out on his qualifications for patrol aircraft commander. The yacht was reported found about 1:00 p.m., and the airship turned to training maneuvers in the area of Barnegat Lightship off the New Jersey coast. It maneuvered in this area until it crashed in the sea, nose first, about 2:30 p.m.

Respondents appear to advance a theory that the crash was caused by pilot or crew error in one of two respects, both quite speculative in foundation. One was that the pilot and the officer being checked out were at the controls, and that the pilot put the ship into some maneuver to test the officer's ability to respond with proper corrective action, that the ship went into too steep a dive, throwing both against the controls and preventing prompt enough corrective action. (On salvage both seat belts were found unbuckled.)

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[2] It would be more helpful to us on review, however, and would give us greater certainty that the result was correct and reached after careful and thoughtful consideration of all factors, if detailed findings and conclusions were reached by the judge himself rather than wholesale adoption of those submitted by counsel. See *Matton Oil Transfer* v. *The Dynamic*, 123 F. 2d 999 (2 Cir. 1941). F. R. Civ. P. 52(a), 5 Moore, Fed. Practice ¶ 52.03, p. 2632: "The purpose of findings of fact and conclusions of law is to aid the trial court in making a correct factual decision and a reasoned application of the law to the facts; to define for purpose of *res judicata* and estoppel by judgment the issues then adjudicated; and to aid the appellate court."

The other theory was that the circuit breakers for the electrical equipment which governed the supply of air to the ballonets were pulled out to the off position by error, making it impossible to correct for loss of pressure. On salvage these two circuit breakers, as well as three immediately above them controlling current to the radar system, were found in the out position, in which the circuits were broken. There was evidence from two of the survivors, Culligan, the senior electrician, and Contreras, that Contreras, one of the junior electricians, some time previous to the crash had awakened Culligan, reported a lack of pressure in the radar system and inquired as to the location of the circuit breakers controlling the radar. Contreras testified that he checked the circuit breakers and all were on except those of some heaters which were inoperative during the hot weather. He thought a radar man also checked the circuit breakers. R. 194-197. A great majority of the circuit breakers on the electrical panels were found in the on position when salvaged. The significance of those found in the off position is in dispute, since a short in the system throwing the circuit breaker to the off position would be caused if any exposed part of the particular circuit entered the water while power was still being supplied to the circuit. Thus neither of respondents' theories provides a satisfactory solution to the question of what was the immediate cause of the crash. Both depend to a considerable degree on conjecture. Appellants' version, however, suffers from a like weakness.

The testimony of the three survivors, of whom Culligan testified and the depositions of Saumier and Contreras were read, and the opinions of Vincelli, a Navy employee who examined the envelope after salvage, and Hiering, another Navy employee who ran fabric tests, if credited,

lend some support to appellants' claim of a seam opening in flight. Culligan testified before the Navy Board that he went back to sleep after talking with Contreras, and saw daylight coming from the astrodome when he next awakened in his bunk. The judge credited his statement at trial, R. 39-40, that he saw daylight; which meant that the envelope had opened. He concluded, however, that Culligan was mistaken in thinking that this was before impact with the water. The record, Ex. A, Resp. App. 2906-14, supports this conclusion of the judge, for Culligan recalled that he was waiting for impact when he saw the light, but that impact never came, an indication that impact had already occurred before Culligan was fully awake, and that it may have been before Culligan saw the light. Contreras and Saumier heard a blowout or burst, or loud crash followed by a nose dive. While this might well have been taken to indicate that the envelope had in fact burst in flight (as had been the Navy Engineering Group's opinion, see Ex. 13, Resp. App. 2919-2923), it is possible that the noises came from cables or structures giving way after the ship had been distorted in shape, with sagging of the envelope, and Vincelli, on whose investigation the Navy's opinion was based, had testified, R. 303, that his opinion that the tear occurred in flight required a taut condition of the envelope, with no sagging, when the tear occurred. That the envelope was distorted, banana or hot dog shape, wrinkled, folded or creased before it dove and that there was then no topside tear, is supported by testimony of eyewitnesses on fishing boats and a plane nearby at the time of the crash. The time estimates varied widely. See Weeks, R. 588-9, Lockie, R. 621-3, Keppler, R. 662-673, Murphy, R. 683-797,

Lopusznski, R. 805 (normally inflated), Conte, R. 914-934, Schleifer, R. 1737.[4]

It may be that these witnesses' testimony was incorrect in some degree, from inaccuracy of observation, faulty memory, or otherwise. In some respects it is quite likely that it was. Several believed the ship was operating at the time of the crash only one of its two propulsion engines, with the propeller of the other feathered. The

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[4] The following condensation of the testimony illustrates the considerable variation in the testimony of the eyewitnesses. Boyd, Conte, Eble, Edwards, Keppler, Lockie, Palumbo, Schleifer, Sellinger and Weeks saw the crash from fishing boats in the area. Commander Murphy and Lopusznski from a Navy airplane flying above the blimp.

Edwards—The front part of the bag was limp before it hit. R. 496, 557.

Weeks—Banana or hot dog shape. R. 588, 13-15 seconds. R. 589. Twisted some—still maintained its gas, both ends. R. 596-7.

Lockie—Noticed a few ripples top section forward. R. 621. Descending—as it was coming down, nearing the surface nosed up slightly at about 15 or 20 degree angle. R. 623. ¾ minute—minute and ½. R. 644.

Keppler—Crack or tear starting at the top, vertically to directly above forward edge of gondola. R. 652-3. Tear slowly, not swiftly—five seconds. R. 658. Now knows there was no tear there. R. 659. Noticed it minute and ½—2 minutes before crash. R. 660a.

Could have been a shadow or a wrinkle. R. 665. Minute and ½ after Keppler told Weeks it was in trouble. R. 667.

Ship reverse position from downard angle to upward angle. R. 672, 673.

Commander Murphy—Fold or crease across the top—banana shape momentarily—dove into water. R. 683. No holes. R. 683. 15 seconds—2 or 3 seconds in the dive. Dove from about 700 ft.—2 or 3 seconds. R. 773. Nose drooped before it went in—no ripping or tearing. R. 797.

Lopusznski—Normally inflated, as if it had flown into the water. R. 805.

Conte—Banana shape—wrinkles. R. 914-5. Came down slow. 2 or 3 minutes. R. 933-4.

Boyd—400-600 ft. up midship section collapsed above the gondola area. R. 1725.

Fragmented wavering pieces of fragment. R. 1726. 6 or 8 seconds to hit the water. R. 1726.

(*footnote continued on next page*)

testimony of the survivor Contreras, R. 190, however, makes it quite plain that the second engine had been started up shortly before the crash, whereupon the auxiliary power unit, not needed when both main generators were running, had been shut down and was being serviced. The judge was not required, however, either by the quite natural variations in the eyewitness' testimony, or such inaccuracy as the apparent one concerning the second engine, to reject all the observations which pointed toward a loss of pressure prior to the crash and prior to the tear. We have no definite and firm conviction that he was in error in finding a loss of pressure in flight, causing distortion of the envelope to a banana shape and causing the loss of elevation without bursting of the envelope.

The court's factual determinations, reached after trial involving the credibility of witnesses, many of whom testified in person, may be reversed only if a reviewing court has a definite and firm conviction that an error has been

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Schleifer—Nose up, but coming down. R. 1737.
"Looked like someone took a fist and run it into the nose of the ship"—continued straight down. R. 1737. Nose up trying to climb 15 to 20 minutes. R. 1743.

Saumier—It wasn't straight down. R. 1790.
They were yelling—somebody yelled "we're going in." R. 1792. Braced himself—took long. R. 1793.
Flying along big bang, boom, then snapping and cracking. R. 1803.

Eble—Little sag in the top—came straight down—long streamers—black strips—black and white ribbons. (No nose left when it hit the water—all had ripped apart in ribbons and was flying back over the tail end of the plane.) R. 1838-9.

Sellinger—800 ft. to sea level in 8 to 10 seconds. R. 1893. (He had earlier said a couple of minutes. R. 1900). (He was partial to the widows. R. 1906). (On deposition he had said "started to slowly nose down" and 2½ minutes). R. 1917-8; 2½, 3 minutes. R. 1947. In a Navy interview in 1960 he did say 8 seconds. R. 1956.

Palumbo—Coming down on an even keel. R. 2628.
Saw torn fabric before it hit the water. R. 2638. But see R. 2642-5 and 2649.

made. *United States* v. *U. S. Gypsum Co.*, 333 U. S. 364, 395 (1948); *McAllister* v. *United States*, 348 U. S. 19, 20 (1954); *Guzman* v. *Pichirilo*, 369 U. S. 698, 702 (1962); *Roman Products Corp.* v. *DiCrasto Dairy & Food Products, Inc.*, 361 F. 2d 599 (2 Cir. 1966). F. R. Civ. P. 52(a).

The remaining claims on appeal have little substance.

Appellants contend that the judge pre-determined the case. A review of the entire record fails to bear out any such claim. The judge's expressed satisfaction when witnesses were produced who hopefully could shed some light on the probable causes of the tragedy is far from a showing of bias or preference for one side or the other.

Appellants contend that the exclusion of a photostatic copy of an IBM card, Ex. 29 for identification found in Goodyear's files, was prejudicial error. The card purported to show a conclusion in some Naval record that the accident was caused by failure of the seam in flight. The card, however, appears to have been insufficiently identified as to source, and even if admissible, its exclusion was harmless error in view of Vincelli's testimony as to his conduct of the Navy envelope investigation, the opinion formed and the basis for it. It appears from the colloquy, R. 740, that the Navy was unwilling to produce its accident report, but it also appears, R. 741, that all the testimony and exhibits before the Navy Board were made available to counsel.

We have considered the other claims of error in the admission and exclusion of evidence and find them without basis.

Judgment affirmed.